

HECKLINGER'S
Proportionate System

COAT CUTTING.

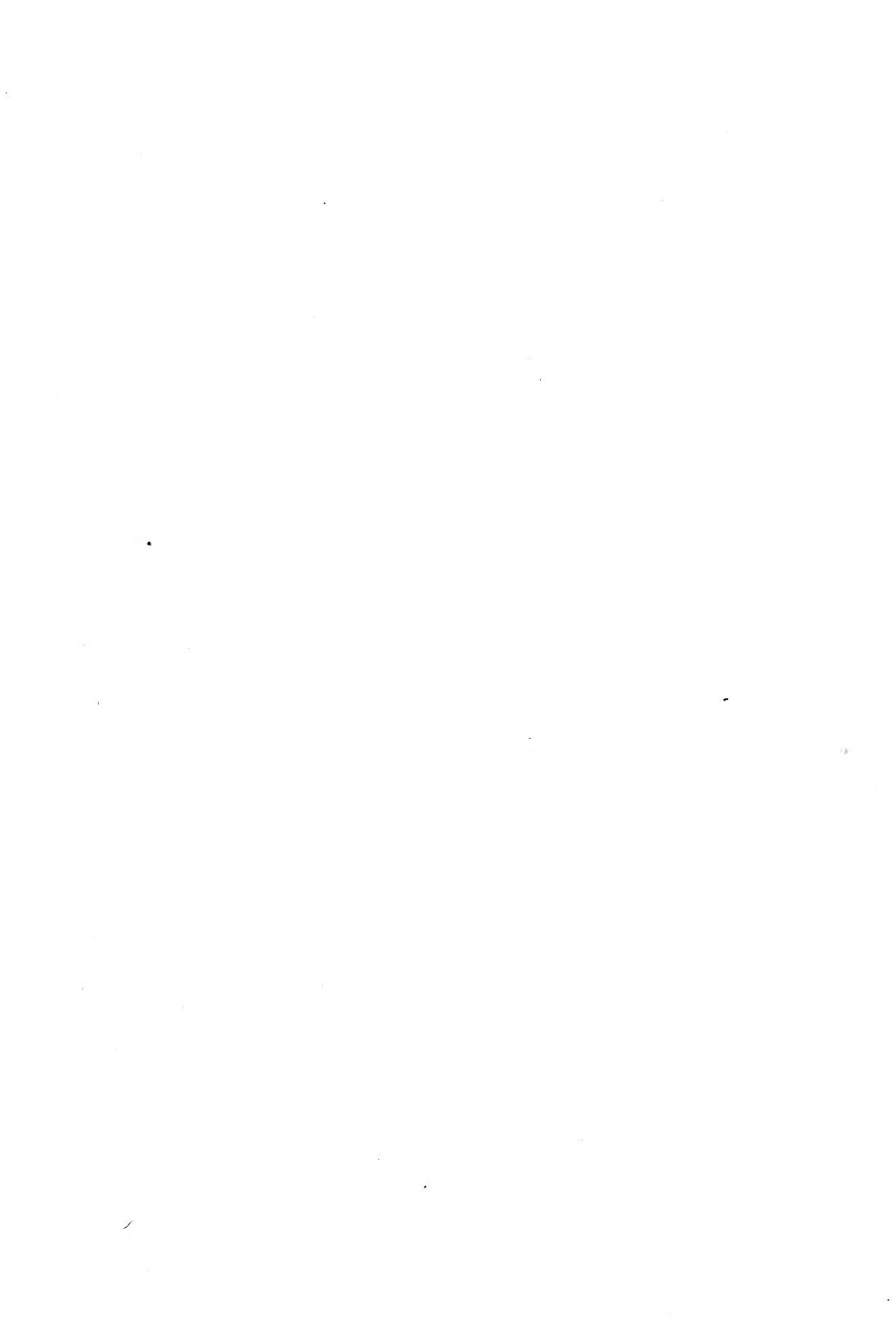
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PROPORTIONATE SYSTEM

OF

COAT CUTTING

BY

CHARLES HECKLINGER,

NEW YORK.

1883.

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P R E F A C E.

The practise of the useful arts necessarily precedes their theory, for it alone can furnish reliable material whence principles may be deducted, and rules determined ; and there can never be a time when it shall cease to be the test to which all rules and theories must be subjected.

This is pre-eminently true of cutting (one of the old useful arts), and it is, therefore, in vain to look for a book on the construction of clothing, which shall be altogether, or mainly, original ; all such books, resting on the experience of the past, must recapitulate its practice, in greater or less degree, unless they be manuals of peculiar specialty, they must partake somewhat of the nature of a compilation borrowed from many sources.

I wish to acknowledge the ideas which I have borrowed ; and if I fail to do so in any instance, the omission is not intentional. In some cases the views of others are so incorporated with and modified by my own, that it is out of the question to preserve the distinction between them.

In the body of the work I have given the most efficient system that I have yet met with for the purpose intended. I have also given what undoubtedly must be considered, the most accurate tables of sizes yet given in any work of the kind.

The course adopted in the following pages, in giving the method and its application to all garments, has been deliberately chosen for the convenience and advantage of the general reader, who is not supposed to be an adapt in the department treated of. To him the book is offered as a manual for guidance. I have tried to make everything clear by illustrations, where the eye often reads more at a glance than in many pages of print. And where scales and tables of proportionate measurements are required, I have not failed to give them. And, I here acknowledge my obligations to my sincere friend, Mr. R. J. Davis, foreman with Messrs. Brokaw Brothers, the celebrated retail

clothing house in New York, for most important data in these, which he has gathered through many years of practical experience. To Mr. Crapo, of the house of Vogel & Co., Broadway, I owe much gratitude for assistance, which none but a practical man could have given, as regards sizes. I also owe thanks to Mr. Champlain, formerly foreman of Browning & Co., now of Philadelphia, for valuable directions, leading me to follow certain lines of thought in the right direction.

Complete and exhaustive as the work is, it cannot fail to be of incalculable value to those who are disposed to profit by it. The table of sizes by a proportionate standard, are, as far as I am aware, now for the first time made accessible to all.

I have condensed and arranged a large amount of useful information on the practical part of cutting, and offered much of what I believe to be sound and new to many, and much of which has never before been seen in print.

Trusting that it will fully meet the wants of the trade, the author now lays it hopefully before them.



INTRODUCTION.

If the reader will carefully consider what are the opinions of practical cutters, in regard to garment cutting, I think they can hardly avoid being drawn to the conclusion that it consists in producing correct proportions and a right balance.

Now, by proportion is meant that corresponding relation of one part to another, or of the parts to the whole, and by balance, such a size of lengths in every part as to make it suitable for the form.

The knowledge of proportions which is desirable that we should possess, for the successful advancement in the science of cutting, consists in being familiar with the sizes that go to make up good forms. Of course, the larger the acquisition of such knowledge, the more easy and rapid will be our progress. And I may here also say, that a sound and thorough view of cutting is only to be gained by knowing these sizes and proportions, and without them none can ever make such advance in our profession as can entitle him to form an independent opinion, or make him an authority in regard to any point in cutting.

It may have occurred (and very naturally too), to many who have thought the matter over, why a proportionate garment will fit and look well on so many different forms. Those who have had the curiosity to investigate this, have found it a very difficult subject. Few have been interested in it. It is intelligible to fewer still, and none yet have given the subject the adequate treatment it deserves.

It is my intention to give the resulting data from the study of this subject in the following. I shall endeavor to give an intelligent understanding how this was arrived at:

In the first place, I will state that the use of proportions in cutting contains as much science as any other which can be used. But, some may ask, "What is meant by scientific cutting?" We have heard this expression in various ways. We have read about it in different works. The subject is

nothing else but the "*application of experience*," or facts. "Everything which is proved true."

Let us then, taking this topic, endeavor to make out why cutting by proportion is scientific, and therefore correct.

It has been observed long ago, that a proportion for the average form re-occurs over and over again in other forms. Systems have been based on such, but lacked one essential point, which is, that they have not taken into consideration the difference in types of form. From the error in these results, others produced methods, adding the use of admeasurements.

But, to show more closely the nature of proportions, and that it is derived from past experience and, therefore, scientific, we will take an example:

We know a 36 pattern, regular in proportion, will fit an average 36 form. Any cutter by measuring the pattern, can tell you whether or no, it possesses this property without trying it on. But such men as Messrs. Noble, Campaign, the elder Madison, Ward, etc., knowing this fact, investigated this, and they each predicted that by using the lengths, as well as the widths, in constructing a pattern, we could eventually gain a proportion suitable for every type of form.

This experiment was made, we saw its application to every form, and we see it still in every day work. This may be considered a signal instance of scientific study applied to tailoring. It is most distinctly an "*application of experience*" gained and applied.

Our well known friend, Mr. Ryan, kept following this line of thought, and has been led to produce his "Human Proportion" in growth. A vast body of experience collected by incalculable labor and devotion. I pass over the process of this accumulation of data, minute and comprehensive knowledge of sizes gained.

Now we take this experience and valuable information, and we apply it to changing forms as we meet them. How is it that experience of this sort, vast as it is, can guide us in our future labors? We must add to this, that in order to describe scientific cutting, "that a step between experience and drafting," is technical skill. That the step between former errors in the calculation of proportions as they should be used, is found in the observed law of uniformity. The step from this uniformity to proportionate sizes, is the law of growth and proportion.

The step then from past experience to new adaptations must be made in accordance with this observed uniformity of forms, in the order of their proportion. This uniformity has held good in the past. We have found it to

hold good in most cases. Being combined with our experience of the past, it enables us to predict that it will hold good in the future, and we are enabled to regulate our methods in accordance with this knowledge.

This method then is scientific, because it causes us to apply past experience to new forms. It consists of the observed uniformity in the law of growth. This law of growth gives us information surpassing our experience, and it enables us to infer that we can produce a garment for persons we have never seen from the proportions of such as we have seen; and the evidence of the truth of this depends on our knowing that the uniformity of the growth holds good.

I want now to consider a part of proportion, and in this I shall confine myself solely to a few points of sizes, about which, it seems to me, that just now there is something to be said. In investigating any point pertaining to this part of our subject, it should be our first endeavor to dismiss from our minds all such crude and hastily adopted notions as may tend to mislead us, and to make an effort for the unprejudiced admission of any conclusions, which shall appear to be supported by exact proof, careful observations and sound argument, even should these be adverse to such opinions as individually we may have formed or taken up, without careful examination, on the credit of others.

The breast measure, which is the first size that we shall examine, is one taken by every cutter, but few know how to make a correct use of it. This may appear to many as a strong assertion, yet I think after an intelligent examination of the subject, there will scarcely be one who will not entertain my opinion about the question.

In applying this measure on a pattern while drafting, we place 18 inches to the front for a 36 breast pattern, and add $2\frac{1}{2}$ inches for seams, ease, and loss in making. This is considered correct for this size.

The same should occur in drafting a 44 or a 48 size breast, by placing one-half of breast and $2\frac{1}{2}$ inches. But experience proves that a pattern cut to the size of 44 will be too large with $2\frac{1}{2}$ inches addition.

In cases of smaller sizes, placing $2\frac{1}{2}$ inches only to a 24 breast will produce a pattern too small.

Now a practical man, when drafting a 44 breast, adds only 2 inches because he has found out by previous experience that it can only bear this allowance, and even then he may reduce it by cutting off here and there to make it what he considers just right. Now, we should have something more

certain than this, and it should be so accurate as to insure its general acceptance as a basis of drafting.

A breast measure of 36 is considered a standard size. Taking 18 inches, with $2\frac{1}{2}$ inches added, is accepted as just right to enable the pattern to meet on the centre of the breast. Let us now find out how the same method will compare when used for a 44 breast, or with a breast-line of 22 with $2\frac{1}{2}$ inches added. The problem consists in this :

As 18:2 $\frac{1}{2}$::22:

Or as 18 is to $2\frac{1}{2}$, so is 22 to some other number. What is this number? It should be only 2 inches to harmonize with practical experience. But we find, by multiplying the two means, and dividing the product by the known extreme, we gain the unknown, and this is more than 2 inches, as follows :

$$\begin{array}{r}
 22 \\
 2\frac{1}{2} \\
 \hline
 11 \\
 44 \\
 \hline
 55
 \end{array}
 \qquad
 \begin{array}{r}
 18 \quad 55 + 3\frac{1}{8} \\
 \hline
 54 \\
 \hline
 \frac{1}{8}
 \end{array}$$

Or the problem results in this : As 18:2 $\frac{1}{2}$::22:3 $\frac{1}{8}$:

If we now take the difference between $3\frac{1}{8}$ and $2\frac{1}{2}$, which is equal to $\frac{1}{2}$ inch and $\frac{1}{8}$ the last fraction being so small that we can afford to drop it, we have $\frac{1}{2}$ inch, which, taken from 22, leaves $21\frac{1}{2}$.

To show this still more clearly, make a line on the board measuring 22, the full breast, and 2 inches the customary allowance, and again place along this line from the same starting-point the reduced breast size as produced by our calculation, which is $21\frac{1}{2}$. Then add the regular amount, $2\frac{1}{2}$ inches, and we shall see that we gain exactly the same point we did before, when we used the full size and reduced allowance.

If we take any size obtained by the same process, we shall always gain the breast widths, which will correspond with our practical experience, and the addition then on every size of $2\frac{1}{2}$ inches will be right on large or small sizes.

The proof that these figures are correct is that they harmonize with our previous experience. This places the application of the breast measure on a sure basis.

We know $2\frac{1}{2}$ inches are taken up in making up loss of seams and wadding in every coat, whether 36 or 48; therefore, this amount must be added also in every case.

The application of the breast measure on the principle I have explained,

gives to it a value and an interest it never had before. Old cutters may have arrived at like results through an unsystematized knowledge, but the explanation given will, I trust, enable all to comprehend and to use it with results that will be altogether satisfactory.

But there is another factor in cutting proportionately, which must be taken into account, and this is the length. A great majority of systems of cutting are based on divisions of the breast measure, which represents only one size of the form, while it is most essential that both the width and length should be accounted for.

As there are but few sizes where the length is in proportion to the width, it must be evident that the size alone of the width is insufficient by which to construct a system correct in its results.

In order, then, to produce a system of proportion which will produce this result, we must select some measure which will regulate both the lengths and widths, especially in the back portion of the coat. The measure which contains this essential value is designated as the "lower shoulder" measure, and is taken from a point at centre of the back between the shoulders, over to top and past the front of arm, under the arm to the first point named. We find this measure (see our table of sizes A,) to give 25 inches to a 36 size breast. To give its application to a system of proportion, we take this shoulder measure, which is 25 inches, and halve it, which gives us $12\frac{1}{2}$ inches, deduct from it $\frac{1}{2}$ inch, and the remainder, 12 inches, represents the blade measure; and as it is $\frac{2}{3}$ of 36 this would be the size to draft a 36 by.

In order to show this same division and the application of the shoulder measure to other sizes, let us take a breast-measure of 44 inches. The shoulder for this size is 29 inches, one-half of which is $14\frac{1}{2}$. Again, as in the former problem, deduct the one-half inch, and the remainder, 14 inches, gives us the proportionate front of size measure for a 44 breast.

But as these 14 inches represent only $\frac{2}{3}$ of a size of 42, we must use a 42 size to draft the back sections of a 44 breast.

Both the shoulder and the blade-measure correspond with a 42 size, and prove that certain parts of a 44 breast must be drafted by a size less in quantity.

In using our tables, which are quantities deducted from calculations, tested by experience, it must be borne in mind always, that the back lengths and widths are drafted by the reduced sizes as given by the shoulder or blade measure.

The size of breast only regulates the width of the breast line. The scale consists both of the front and back heights, marked on a neat instrument in

the form of a square, by which these heights are readily applied to the pattern or draft.

The table marked B gives the sizes which should be used in drafting.

The first row contains the size of breast; the second the size the breast line should be drafted, and the third the scale which must be used, if necessary, to enlarge or reduce a pattern in the process of grading from one pattern to other sizes.

As practical experience teaches, that on very large and small sizes, the position and build of the figure varies, and that the relative length of front and back points are different, we have included in our calculation this factor.

Accordingly to meet these disproportions we have regulated our scales, which accompanies this work, so that this is taken into account, and this discrepancy met.

It will be found on examination, that by our scale, both the very smallest and extremely large sizes are produced with varying lengths, suitable, however, for the sizes intended, thus regulating both the front and back sections in harmony with the demands of the proportions of the figure.

Our other proportions as given, are such as have been found in the usage of practical men, highly competent, to be correct, and to give the truest result for practical sizes as can be attained, and I am confident they will greatly facilitate and simplify the work of producing correct patterns.

In its appropriate place I also give practical or increased additions, required over these quantities for patterns intended to be used for ready-made clothing. These sizes have been procured from men of great experience, and long practise in this line, men holding leading positions, and considered as first-class authorities.



TABLE A.

PROPORTION OF SIZES.

COMPRISING WIDTHS AND LENGTHS.

Table of sizes which are deducted from the widths and lengths, and which regulate the right proportion of the balance of the garment in its length of front and back, and also regulate the size it is to be drafted:

BREAST.	LOWER SHOULDER.	BLADE.
30	22	10 $\frac{1}{2}$
31	22 $\frac{1}{2}$	10 $\frac{3}{4}$
32	23	11
33	23 $\frac{1}{2}$	11 $\frac{1}{4}$
34	24	11 $\frac{1}{2}$
35	24 $\frac{1}{2}$	11 $\frac{3}{4}$
36	25	12
37	25 $\frac{1}{2}$	12 $\frac{1}{4}$
38	26	12 $\frac{1}{2}$
39	26 $\frac{1}{2}$	12 $\frac{3}{4}$
40	27	13
41	27 $\frac{1}{2}$	13 $\frac{1}{4}$
42	28	13 $\frac{1}{2}$
43	28 $\frac{1}{2}$	13 $\frac{3}{4}$
44	29	14
45	29 $\frac{1}{2}$	14 $\frac{1}{4}$
46	30	14 $\frac{1}{2}$
47	30 $\frac{1}{2}$	14 $\frac{3}{4}$
48	31	15
49	31 $\frac{1}{2}$	15 $\frac{1}{4}$
50	32	15 $\frac{1}{2}$
51	32 $\frac{1}{2}$	15 $\frac{3}{4}$
52	33	16

TABLE B.

Proportion of size of breast line with the size that any scale should be to enlarge or reduce any pattern in grading or in taking off a diagram from any work :

BREAST.	SIZE OF BREAST.	SIZE OF SCALE.
30	15 $\frac{3}{4}$	31 $\frac{1}{2}$
31	16	32 $\frac{1}{4}$
32	16 $\frac{1}{4}$	33
33	16 $\frac{3}{4}$	33 $\frac{3}{4}$
34	17 $\frac{1}{4}$	34 $\frac{1}{2}$
35	17 $\frac{1}{2}$	35 $\frac{1}{4}$
36	18	36
37	18 $\frac{3}{8}$	36 $\frac{3}{4}$
38	18 $\frac{7}{8}$	37 $\frac{1}{2}$
39	19 $\frac{1}{4}$	38 $\frac{1}{4}$
40	19 $\frac{3}{4}$	39
41	20 $\frac{1}{8}$	39 $\frac{3}{4}$
42	20 $\frac{1}{2}$	40 $\frac{1}{2}$
43	21	41 $\frac{1}{4}$
44	21 $\frac{1}{2}$	42
45	21 $\frac{3}{4}$	42 $\frac{3}{4}$
46	22 $\frac{1}{4}$	43 $\frac{1}{2}$
47	22 $\frac{3}{4}$	44 $\frac{1}{4}$
48	23 $\frac{1}{8}$	45
49	23 $\frac{1}{2}$	45 $\frac{3}{4}$
50	24	46 $\frac{1}{2}$
51	24 $\frac{3}{8}$	47 $\frac{1}{4}$
52	24 $\frac{3}{4}$	48

TABLE C.

PROPORTION OF WIDTHS.

WIDTHS OF SIZES FROM 30 TO 52 BREAST.

The following table gives the widths necessary to draft all sizes from 30 to 52 breast, comprising the proportionate breast-waist—the blade or front of arm, and the hip and drafting size:

BREAST.	WAIST.	BLADE.	SIZE OF BR'ST.	SIZE TO DRAFT	HIP.
30	28	10 $\frac{1}{2}$	15 $\frac{3}{4}$	31 $\frac{1}{2}$	32
31	29	10 $\frac{3}{4}$	16	32 $\frac{1}{4}$	33
32	30	11	16 $\frac{1}{4}$	33	34
33	30 $\frac{1}{2}$	11 $\frac{1}{4}$	16 $\frac{3}{4}$	33 $\frac{3}{4}$	35
34	31	11 $\frac{1}{2}$	17 $\frac{1}{4}$	34 $\frac{1}{2}$	36
35	31 $\frac{1}{2}$	11 $\frac{3}{4}$	17 $\frac{1}{2}$	35 $\frac{1}{4}$	37
36	32	12	18	36	38
37	33	12 $\frac{1}{4}$	18 $\frac{3}{8}$	36 $\frac{3}{4}$	39
38	34	12 $\frac{1}{2}$	18 $\frac{7}{8}$	37 $\frac{1}{2}$	40
39	35 $\frac{1}{2}$	12 $\frac{3}{4}$	19 $\frac{1}{4}$	38 $\frac{1}{4}$	41
40	37	13	19 $\frac{3}{4}$	39	42
41	38 $\frac{1}{2}$	13 $\frac{1}{4}$	20 $\frac{1}{8}$	39 $\frac{3}{4}$	43
42	40	13 $\frac{1}{2}$	20 $\frac{1}{2}$	40 $\frac{1}{2}$	44
43	41 $\frac{1}{2}$	13 $\frac{3}{4}$	21	41 $\frac{1}{4}$	44 $\frac{1}{2}$
44	43	14	21 $\frac{1}{2}$	42	45
45	45	14 $\frac{1}{4}$	21 $\frac{3}{4}$	42 $\frac{3}{4}$	45 $\frac{1}{2}$
46	46 $\frac{1}{2}$	14 $\frac{1}{2}$	22 $\frac{1}{4}$	43 $\frac{1}{2}$	46 $\frac{1}{2}$
47	48	14 $\frac{3}{4}$	22 $\frac{3}{4}$	44 $\frac{1}{4}$	47
48	49 $\frac{1}{2}$	15	23 $\frac{1}{8}$	45	49 $\frac{1}{2}$
49	51	15 $\frac{1}{4}$	23 $\frac{1}{2}$	45 $\frac{3}{4}$	51
50	52 $\frac{1}{2}$	15 $\frac{1}{2}$	24	46 $\frac{1}{2}$	52 $\frac{1}{2}$
51	53	15 $\frac{3}{4}$	24 $\frac{3}{8}$	47 $\frac{1}{4}$	54
52	54	16	24 $\frac{3}{4}$	48	55

TABLE D.
PROPORTION OF LENGTHS.

LENGTHS OF ALL SIZES FROM 32 TO 53.

These are the lengths from 32 to 53 breast with the proportionate length of the natural waist. The full length of waist. The sleeve length. The length of the sleeve is given as close as can be by the figures, but in grading they will deviate a trifle; this length is under the arm to the root of thumb. Front and back height by small scale accompanying this work.

BREAST.	NATURAL WAIST.	FULL LENGTH OF WAIST	SLEEVE.
32	15½	17½	17
33	16	17½	17½
34	16¼	18¼	18
35	16¾	18¾	18½
36	17	19	19
37	17½	19½	19½
38	17¾	19¾	20
39	18¼	20	20¼
40	18½	20½	20½
41	18¾	20¾	20¾
42	19½	20½	21
43	19¾	21	20¾
44	19¾	21½	20½
45	19¾	21½	20½
46	20	21¾	19
47	20½	21¾	19
48	20¾	22	19
49	20½	22½	19
50	20¾	22¾	19
51	20¾	22¾	19
52	20¾	22¾	19
53	20¾	22¾	19

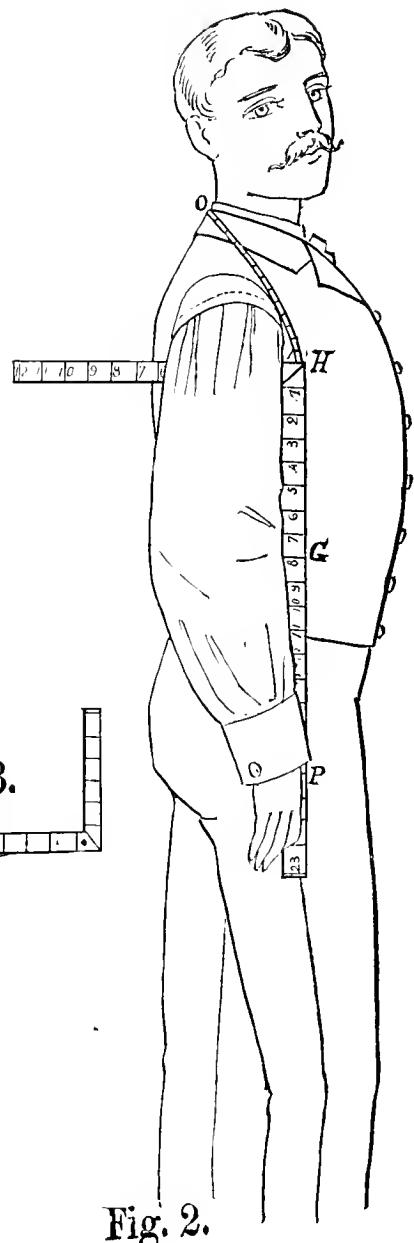
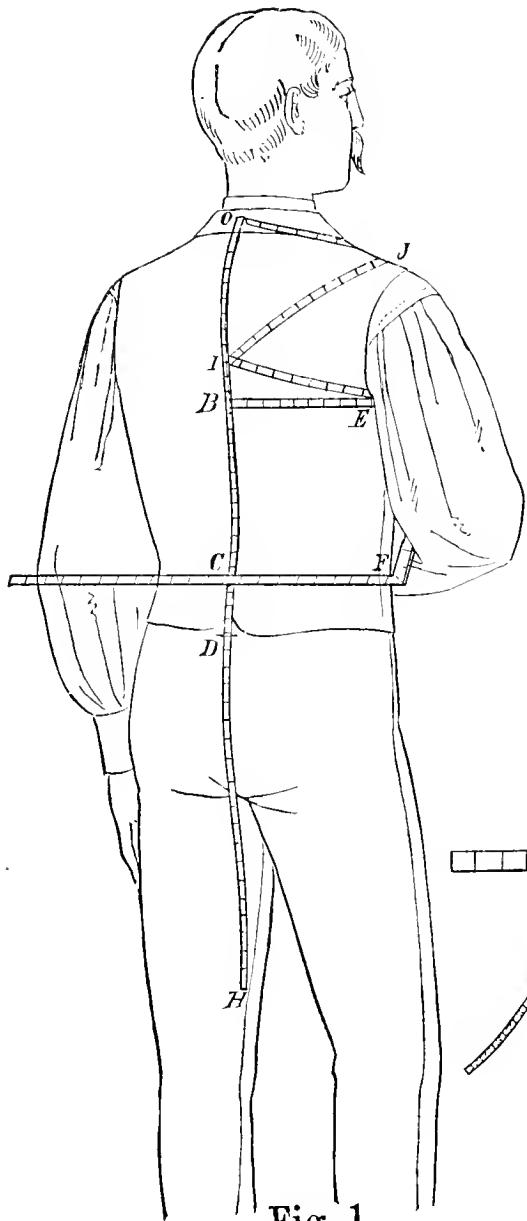


Fig. 3.

THE MODEL DRAFT.

FIGURE 4.

We commence by drafting a breast size of 36 inches, and a corresponding size of 32 waist, with the proportionate lengths.

First draw line $O'E$, and at right angles with this $O'P$, at top.

From O as starting point, go down to C , the quantity called for by the scale number 36 marked *breast height*, which in this case is equal to one-quarter of breast.

From $O'A$ and E drawn lines across at right angles with the back line; from O to A is the length of natural waist and to E the full length.

From O to F is the same as O to C .

From C to T is one-half of breast, 18 inches.

From T to Z is $2\frac{1}{2}$ inches.

Now measure the distance C to F , which in this case is 9 inches. This is one-quarter of 36; now take $\frac{2}{3}$ of the breast which is 12 inches and place it from C to G .

As in different sizes the back portion of the coat will be smaller, and not in the same proportion to the whole breast measure, I must here caution the reader not to forget to always first measure this very essential width from C to F , as this regulates the front of arm; whatever it may be, reduce it to a breast size, it being one-quarter of this size, and then whatever breast it makes, of this take two-thirds for the point G .

Draw a line from F down to N at right angles with line under arm, and also one from H upwards.

Remember also as soon as point F has been produced, to retain and use the same breast proportion it gives for all other divisions in the back portions of the draft.

From G to H is always one-half inch, from which point draw a line upwards.

From O to Y is $\frac{1}{8}$ of breast proportion, and from Y to 1 is $\frac{1}{2}$ inch.

From 1 up to 2 is $\frac{1}{2}$ inch. Now curve neck from O to 2. Then draw the line from G to 1.

Point B is midway between O and C , from which draw a line to S , and where it touches the diagonal at S , draw one down to I .

Raise point 3 above $S \frac{1}{2}$ inch, and draw the line for back shoulder from 3 to 2.

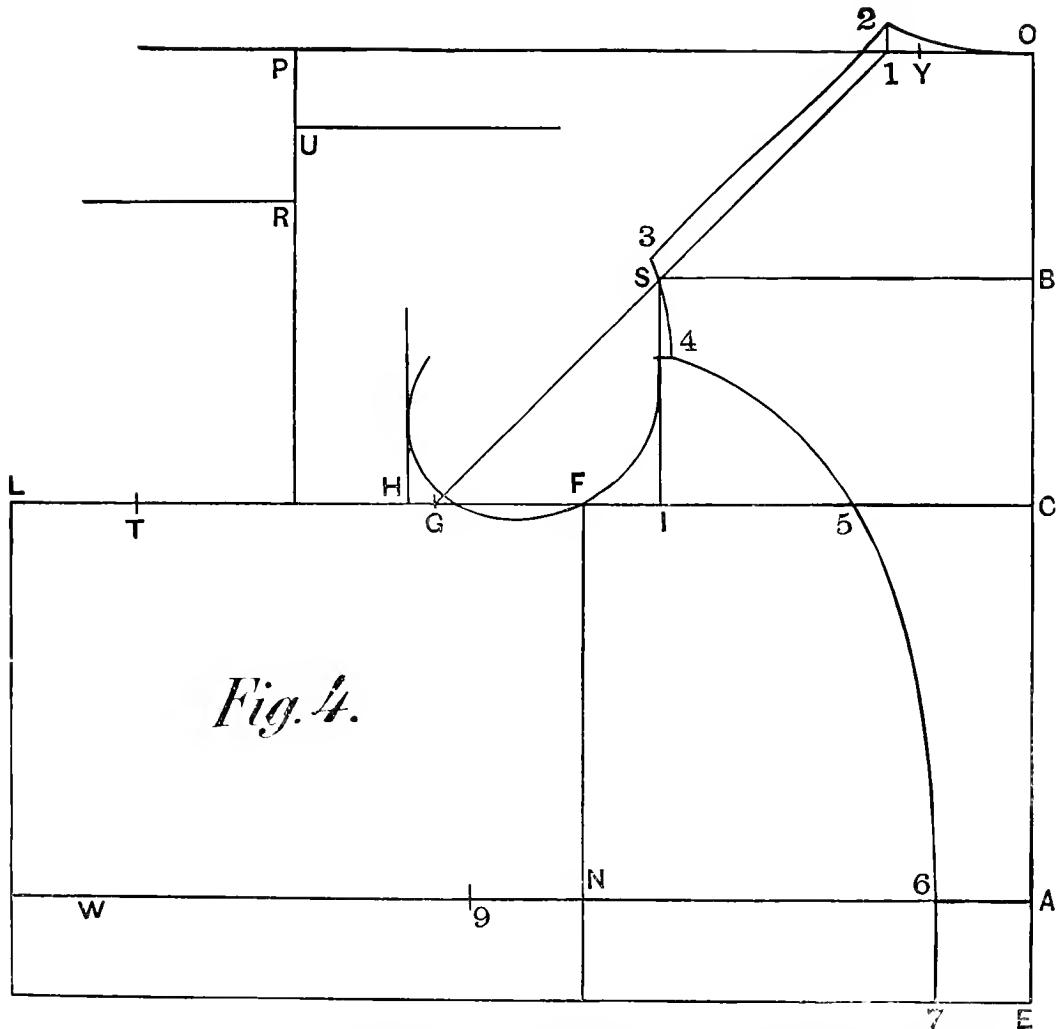


Fig. 4.

Now make the distance from 3 to 4 any amount desired, according to style, say 2 inches, and then draw the curve from 3 to 4, letting the last point be $\frac{1}{4}$ inch inside of the line.

Let the width of the back at waist be 2 inches, or to style, and curve the seam from 4 past 5 to 6 and 7.

Draw the armhole from 4 , but remaining on the vertical line, to F and G .

Go below breast-line $\frac{1}{4}$ inch and touching line in front of arm, also touching point F .

To get the pitch of front shoulder point, take the distance from C forward to H , and place it from Y forward on top line to P .

From P draw a line to R , and measure down to R $\frac{1}{6}$ of the breast-measure, 3 inches, and halve it, which gives U .

Then from R forward draw a line, and one also from U backwards.

From Z draw a line down towards the bottom of the front.

From N to 9 is $\frac{1}{8}$ of breast proportion, $2\frac{1}{4}$ inches.

Now let us turn to figure 5 and complete the draft by the following :

We are drafting a breast-measure of 36, and corresponding waist of 32.

Now the difference between 36 and 32 is 4 inches ; for every inch difference between the breast and waist we take $\frac{1}{4}$ of an inch, thus, in this case, making in all 1 inch.

This is, of course, changeable, as the size between the breast and waist is greater or less ; as in some cases nothing is taken out when the breast is equal to the waist.

This one inch difference we place in front of N to Z , and draw the two lines from F through N to 10, and F' through Z to 10.

The next point is to get the suppression of the waist. To do this we first measure the width of the back A to 6, which will give $2\frac{1}{4}$ inches, place this on to 9 and get the distance to Z , which probably will make it $3\frac{1}{2}$. Then place this last on to N , and from there measure back to M , which should be 8 inches, or $\frac{1}{4}$ of the waist measure. This will make the whole distance back from the star marked G to A , just one-quarter of the waist, equal 8 inches, of course leaving out the parts which are cut out at Z and N and M -6.

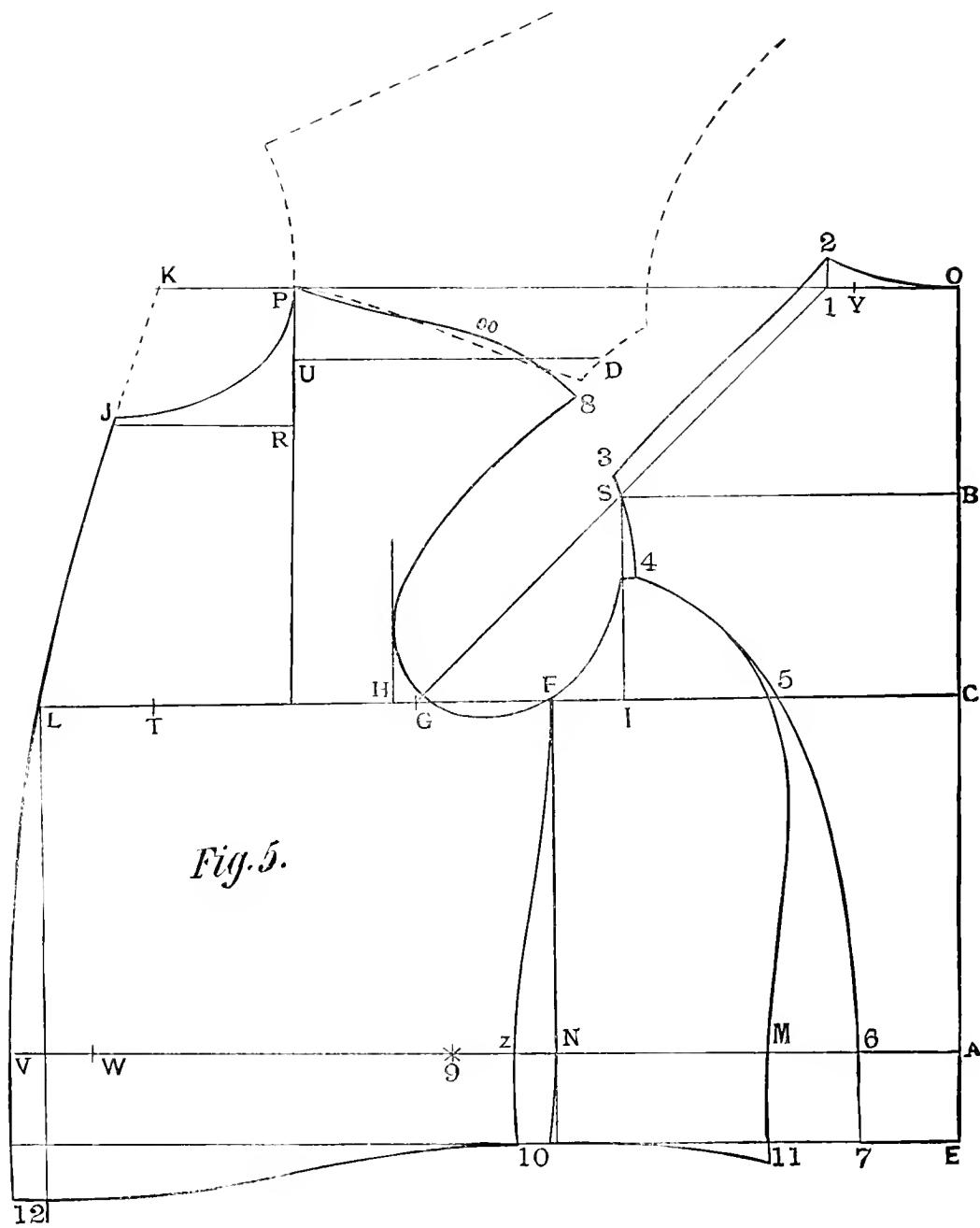
From 9 forward to W is one-quarter of the waist, equal to 8 inches, and from W forward to the front edge is 2 inches.

Now cut out the back, and moving it at 5 closing at M to get the length of side body. This should be $\frac{1}{2}$ inch longer than the back, then form the side-body line by adhering to the back to within one inch of 5, then begin to separate, so that at 5 we have $\frac{1}{8}$ inch space, thence curving toward M and finishing at 11.

Be careful not to make this too round or flat between 5 and M , and in no case spring out on an ordinary lengthened waist beyond 11, which is, as can be seen, almost straight below M .

From 11 curve slightly up to line near 10.

Place the back next on to the line at top and neck lines, in such a posi-



tion that point 2 of the back will lay on to point *P* and *S* of the back at line *D*.

While in place trace along the edge of shoulder, and then form the shoulder by drawing $\frac{1}{2}$ inch below the back at point *S* to *O*, which is a little above the line to *P*.

From *P* to *K* is $\frac{1}{6}$ of breast. Draw the neck from *P* to *J*. Regulate the width of the shoulder by the back, and draw the armhole from *S* to the line in front and round it to *F*.

Our next is to draw the breast-line. This is best done by starting directly from point *K*, which is, as already stated, $\frac{1}{6}$ from point *P*.

Starting then at *K* draw the front line past *L*, touching *V*, from whence down it should be straight to 12.

From *P*, as pivot, we sweep from 11 at lower point of side-body to front, and where it crosses perpendicular line at 12 is the length of front. Now finish the draft as per diagram.

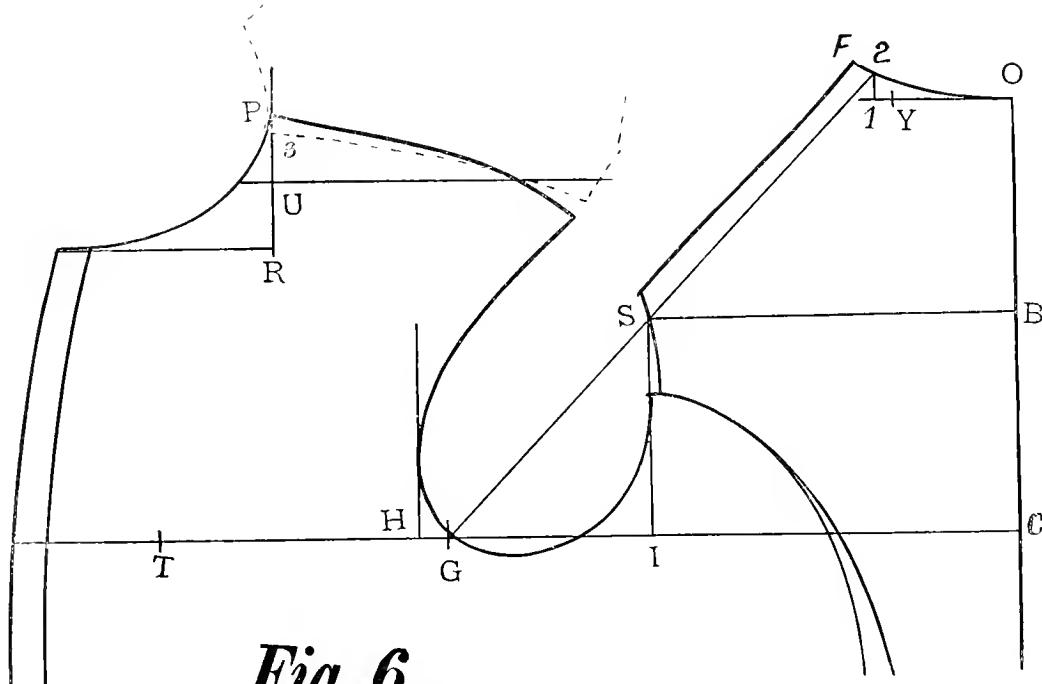


Fig. 6.

CHANGES FROM LAST DIAGRAM.

Where it is desired to make an easy fitting coat the deviations necessary are shown on diagram 6.

In such cases the changes are that the distance from *C* to *H* is placed from 1 to *P*, instead of *Y* to *P*. This, of course, makes the distance between

the points $\frac{1}{2}$ inch larger. The line from *G* is also changed and drawn to 2 at top, which makes the back slightly wider.

In everything else the draft is finished as the regular one in the preceding article.

We would caution the cutter not to spring out the bottom of the side-body below *M* to 11, but let it be as nearly as can be straight down; so also the spring at side from *Z* and *N* down. At *V* to 12 the line should be at right angles with line of waist. Only on very long waists, extended 3 inches or more below the waist line, can we add more spring.

The top of the shoulder on the back may also be made wider, as shown on diagram 6. This will place the shoulder seam farther forward, and place the seam more nearly in the hollow at side of neck. The extra width added will fall off the front. Whatever width the back may be, point 2 must always be placed on to *P*, and in case of a back like on this diagram, it will reach below to 3, from where the shoulders of the front are then drawn.



FAT MAN'S COAT.

FIGURE 7.

The manner of drafting coats are all similar, and therefore, as no changes occur in the general way of drafting, this one would need no extra explanation.

But as the proportions of large sizes are different, and change as the sizes increase, and as it must be suitable for the breast, we may be pardoned if we give more additional explanations in regard to it, in order to prevent as much as possible any mistake.

As we have already stated in our article on proportion that the same divisions of the breast-measure as used on a 36 breast, where the lengths are equal in proportion to the width, cannot be applied on any other size, except in case the form is large, and of a shape like a 36. Therefore, we must use the size to draft by which is correct for this breast.

The average form seldom requires any other change, and those in our table will be found to give a more satisfactory result by closely adhering to them.

When drafting a large size, we draw the lines *O-P* and *O-E*.

Starting from *O* place down the back scale, if drafting, for instance, a 44, we mark scale 44. Then draw breast-line to *L*. Mark down the lengths of waist.

From *C* to *F* is the same as *O* to *C*, which will be equal to $10\frac{1}{2}$ inches. Now $10\frac{1}{2}$ inches is one-quarter of 42 breast-size. This must always be first figured out.

Now to take $\frac{3}{8}$ of 42, which is 14 inches, or equal to the blade measure, this place from *C* to *G*, then from *G* to *H* is $\frac{1}{2}$ inch.

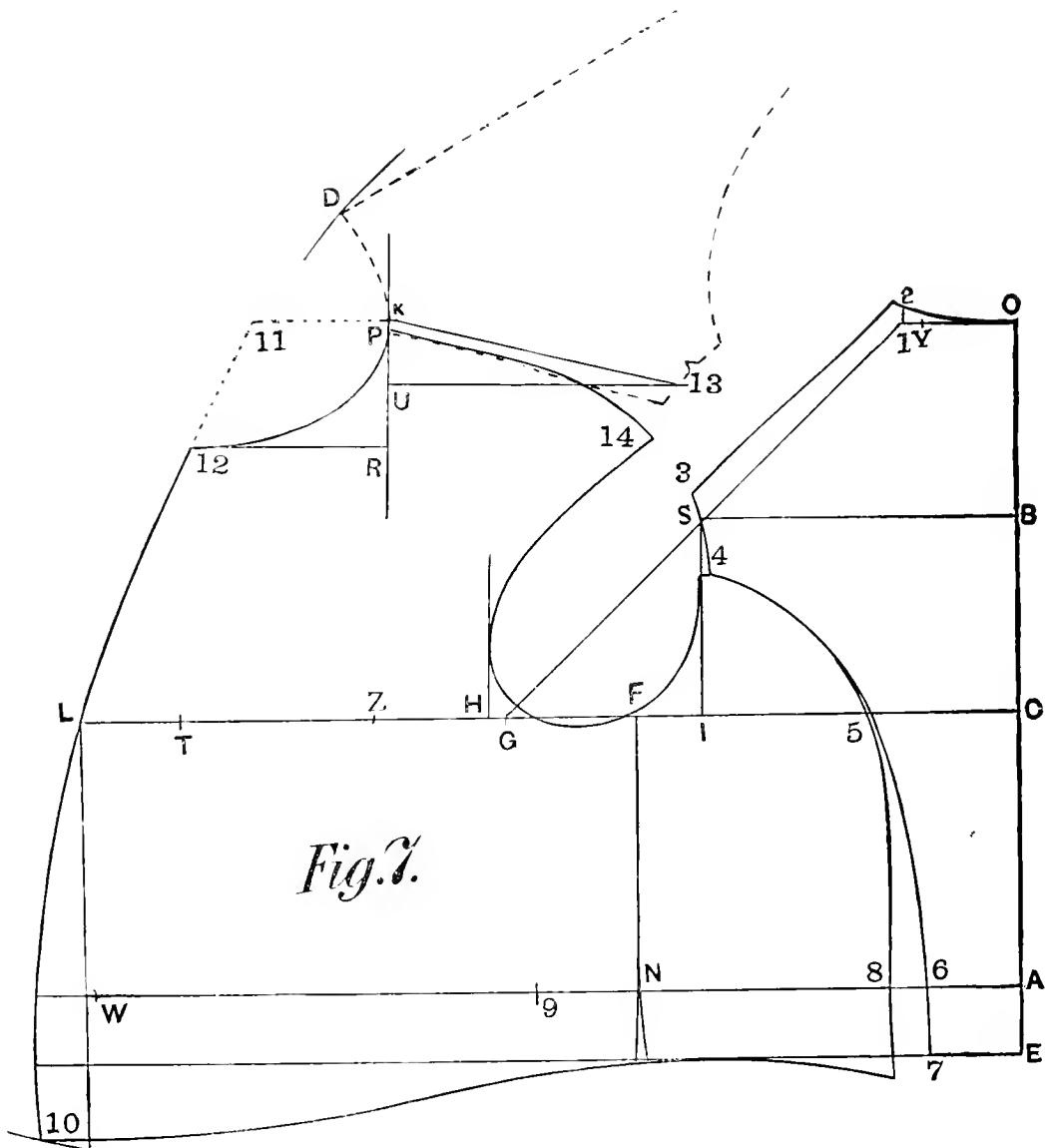
Now as we have a back portion of the coat drafted by a proportion of 42 breast, we must adhere to this in every local size back of front of arm. Therefore we take $\frac{1}{8}$ of 42 and place it from *O* to *Y*.

From *Y* to *1* is $\frac{1}{2}$ inch.

Draw a line from *G* to *1*, and curve top of back, shoulder, and finish the back like the preceding.

As in such sizes the waist is equal to the breast, or larger. There will not be anything to be taken out between the front and side-body.

From *N* forward to *9* is $\frac{1}{8}$ of 42 breast, and from *9* back to *A* is $\frac{1}{4}$ of



waist, which regulates what will be necessary to take out between the side-body and back.

From *9* forward is the other $\frac{1}{4}$ waist to *W*, and from *W* to the front line is $1\frac{1}{2}$ inch, on large sizes.

The distance *C* to *H* is placed forward from *Y* to *P* for the shoulder

point. By the proportion of the breast, and by the table of sizes, we get $2\frac{1}{2}$ inches; for the distance on breast-line from C to T , and from T to L is $2\frac{1}{2}$ inches.

The balance of the draft is finished as explained in the preceding article.

When the front shoulder line is drawn, measure up from Z to P , the distance on the scale for the breast size 44, marked *front height*, which gives the height of point P . Then from this point when established, mark down U and R . Points 11— U and R being in point are division of the whole breast.

Each division in front of arm represent such of the total breast measure, and every division back of arm, those of what point F represents.



THE FROCK SKIRT.

FIGURE 8.

This skirt is drafted in the following manner:

Lay the pattern down on a sheet of paper. Extend the line *S-R* on the forepart over towards *F*, then lay the side-body on this line from *R* to *F*, both outside points resting on the line.

Now to get the upper curved seam of the skirt, trace along the bottom of the side-body and front, from *4* past *Z* and *I* to *A* and *N*.

At *I* curve the skirt $\frac{1}{2}$ inch below the front. This is done to get a little ease over the knee, so that it may not cling too close over the knee in walking.

At right angles with line at waist *R-S*, draw one down to *5*, also one forward from *N* to *M*, distant from *A*, the width of lapel.

From *4* at sidebody go out to *F* one-quarter inch. And by laying the straight-edge on to *O* and *F* draw a line to *Y*.

From *4* curve past *E* to *Y*, going beyond *E* to *D* $\frac{1}{2}$ inch for round over the seat.

Apply the length of the back to *Y* and sweep from this last point to *5* by the top of shoulder.

Flatten the centre of the skirt some, and be careful to have the front from *M* to *7* square with line *N-M*.

Another point which should be noted is that the top of the skirt be at right angles with the front line from *N* to button at waist. If this is not so drawn, it may be liable to button badly, and to cause it to hang unevenly at bottom, or show one point beyond the other, and the waist-seam may not lay over one another.

THE DRESS COAT SKIRT.

This is drawn in the same manner as a frock in the back portion, but from *I* we begin to drop the strap, till at front *P*, it will be below the forepart one inch.

As the front from *S* to *A* is cut away to some extent in a dress coat, it is

evident the length of the strap is cut just far enough forward to reach the width of the front.

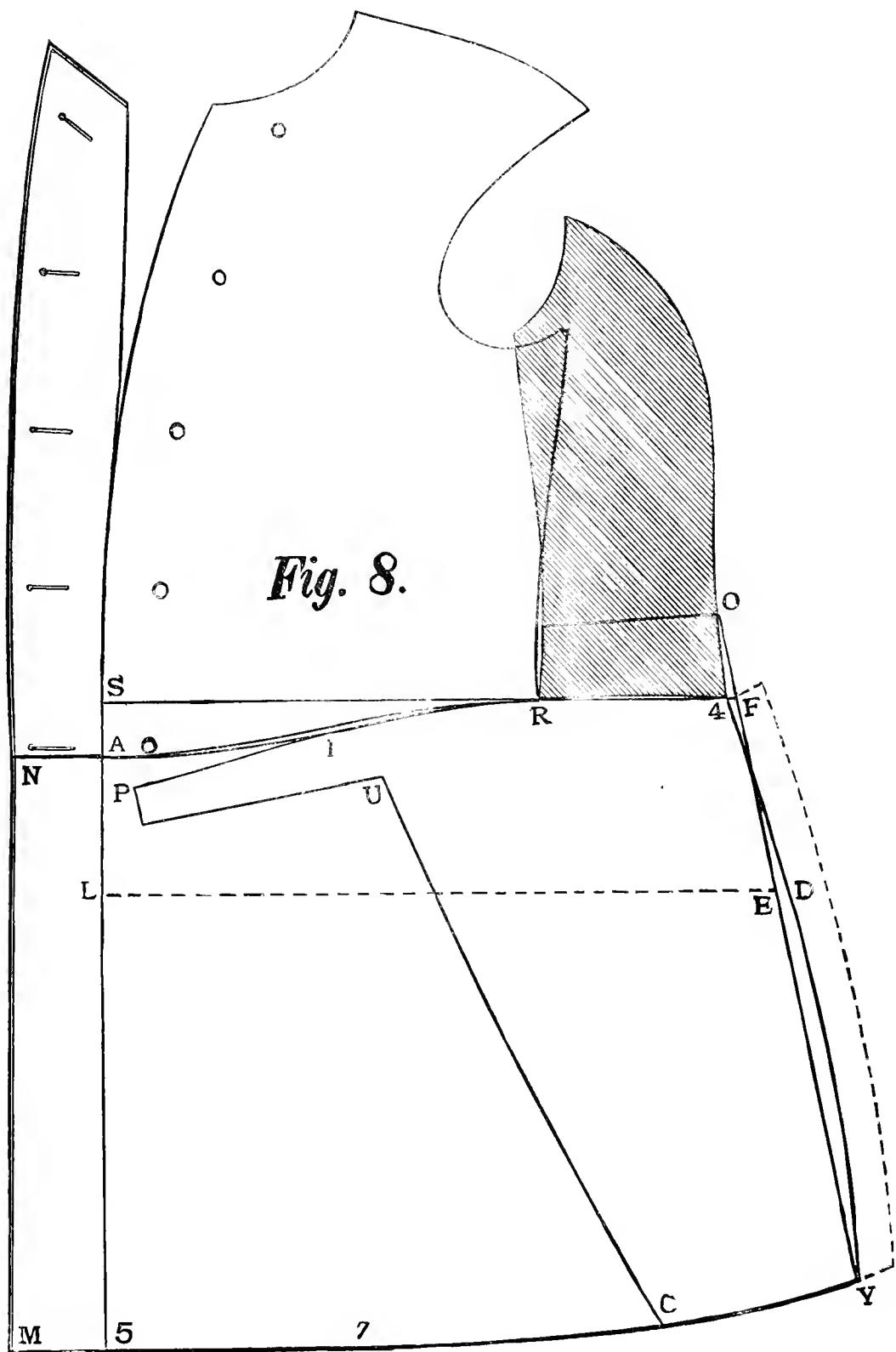
The strap is made $\frac{2}{3}$ of the width of top from *P* to *U*.

The distance from *Y* to *C* is one inch more than $\frac{1}{3}$ of hip and the outlines drawn like the diagram.

The width at bottom is subject to style and fashion. The size we give is an average; some seasons it may be required narrower and others again wider.



Fig. 8.



THE CUT-AWAY SKIRTS.

Let us first illustrate how to draft the skirt to the back. Figure 9.

Draw a line on the edge of the paper, or cloth, then lay the pattern against it at top point *O*, but at *D* it must be $1\frac{1}{2}$ inch from it.

Now apply the full length down to the bottom, which produces point *N*.

The hook at *D* is made $\frac{3}{4}$ inch wide, from this a line is drawn nearly parallel down the edge. A seam is also added above the dotted line nearer to *D*, so that the cloth can be turned in for the tack.

From *R* to *O* draw a straight line, and add sufficient to make a plait. This last should never be less than one inch.

The front skirt, as illustrated by figure 9, is drawn as follows:

Lay the pattern down on paper, and place a weight upon it to hold it fast in position.

Extend the line on the front marked *O-L*, over to *D*. This line is the second waist-line used when drafting the body-pattern.

Now lay the side-body against this line from *O* to *D*, so that point *O* and *D* both rest on line. While held thus, trace along it from *D* to *O-W* and the front *S*. It should follow the course of side-body at *P*, and from *O* to *W* the front. From *W* forward begin to separate from the body-pattern till at *S* there is a space of $\frac{1}{2}$ inch.

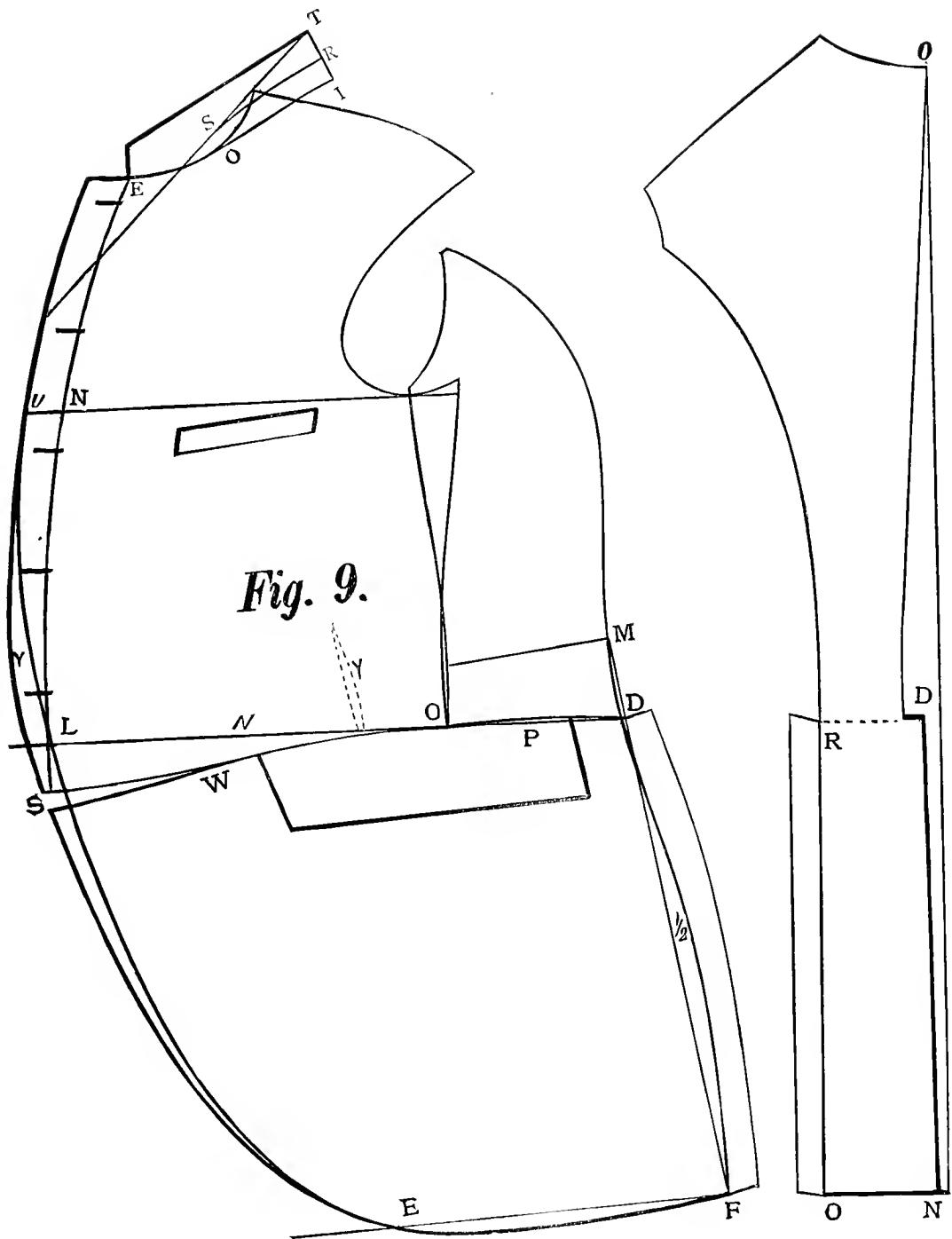
From the side-body at *D* go out $\frac{1}{4}$ inch, and then lay the square against *M*, the natural waist line, and touching the $\frac{1}{4}$ point, and while in this position draw the line from *D* to *F*.

Apply the length of back skirt from *D* to *F*, and curve from *D* down, going over the line $\frac{1}{2}$ inch at seat.

Place the front now in a closing position at *S*, and draw the curve for the front suitable to style.

The front of this diagram represents a single-breasted, four-button cut-away.

From *N*, the centre of breast-line, one inch is placed forward for the front edge. By drawing this edge through *L* a one button cut-away is produced, and by extending the edge from *U* to *Y* and then cutting away, a four button cut-away is made.



THE SACK COAT.

FIGURE 10.

Draft this in every way the same as a frock coat in the upper parts as regards sizes and points, namely:

First draw line $O-E$.

From O to C is size marked on the back scale.

From O to A is the length of the waist and to Z the full length.

Square the lines across.

From C' to F is the length on back scale.

From C' to G is $\frac{2}{3}$ of this latter size when reduced to breast size.

G to H is $\frac{1}{2}$ inch.

O to Y is $\frac{1}{8}$ of size of back portion and to 1 an additional $\frac{1}{2}$ inch. Raise the neck at 2 and draw curve.

Draw the line from G to 1 and raise above S to 3 about one inch.

B is midway between O and C , from which draw a line to S , and from S down draw one to 4 .

From E to 7 is $\frac{1}{3}$ of breast ; from 7 draw a line up.

Make point 4 about $1\frac{1}{2}$ inches above line at 5 , then curve the back from 4 to $5-6$ and 7 .

Also curve the back seam $\frac{1}{2}$ inch at A .

Draw also the arm hole from 4 through F and G to line up from H .

Place the distance $C'H$ over from Y to P and draw the line P to R and 20 .

From breast-line point 20 up to P is front scale.

From P down to R is $\frac{1}{8}$ and U is midway between P and R .

From N to Z place the difference of waist and breast as already stated, and from N to 9 is $\frac{1}{8}$ breast as given by the back portion.

From 9 back to centre at A should be $\frac{1}{4}$ of waist, less the distance NZ , and what is found is taken cut between 6 and M .

In doing this, first measure A to 6 , the width of the back ; then lay this last on to 9 and measure to Z , then from N . to M .

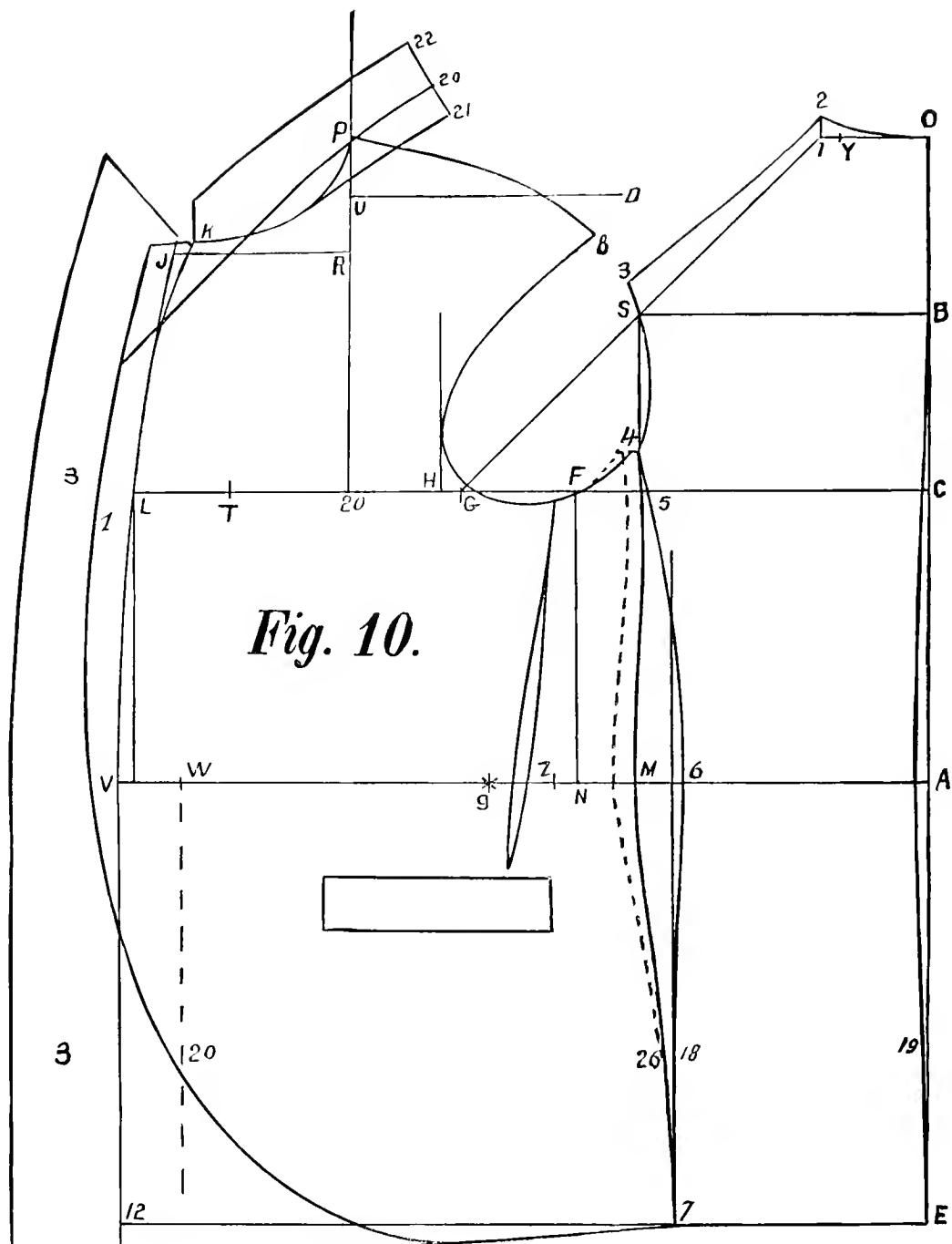


Fig. 10.

Should this in some cases give too sharp a curve at M , lessen it by adding at M , and insert a large cut under the arm.

From 9 forward to W is $\frac{1}{4}$ of waist, and to V is $1\frac{1}{2}$ inch.

Draw a line down from *V* and one from *W*, both at right angles with waist-line.

To make the size of hip correct, measure the width of back 19 to 18, and then from the dotted line 20 to 26, and wherever this size brings it, it is the proper spring at side. Apply the back at shoulder and finish it.

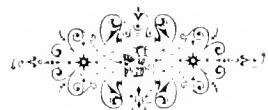
For a single breasted add one inch to the front, and shape it to any style desired.

For a double breasted add one over breast centre line $\frac{2}{3}$ to 3 inches

We will again call particular attention to the size from 9 to A , so that no mistake may occur.

If the distance when measured from back line to 6 is found to be $5\frac{1}{2}$ inches say, lay this $5\frac{1}{2}$ on to 9 and get point Z , which probably will be 7 inches. Then skip Z to N and 7 inches on to N and measure back to M , which should be made 8 inches on a 32 size on $\frac{1}{4}$ of the waist.

If no cut is put under the arm, take off the side-body at 4 about $\frac{2}{3}$ of an inch, and draw a curve to nothing at 26—like diagram.



SACK OVERCOAT.

FIGURE 11.

The double breasted oversack, illustrated by figure 11, is drafted the same as any other sack coat. But, of course, it is only larger. If it is intended for a 36 breast, the measure taken over the vest, it must be drafted two sizes larger, or a 38.

It is also evident that the measure taken over the coat will produce it correct in size without any increase.

Care should be taken, that it is cut sufficiently ample to cover the hips. The addition at front over the centre the breast-line, should be an average of three inches, for lap, and the button holes marked $\frac{3}{4}$ of an inch from the front edge.

In spacing the buttons, measure the distance from the front of the button hole to the centre line of breast, and place the same distance over from the centre line back for the place where the buttons should be put.

In drafting the sleeve for this coat, be careful to measure the size of arm-hole, and cut it by the size given.

THE SINGLE-BREASTED OVERCOAT—FIGURE 12.

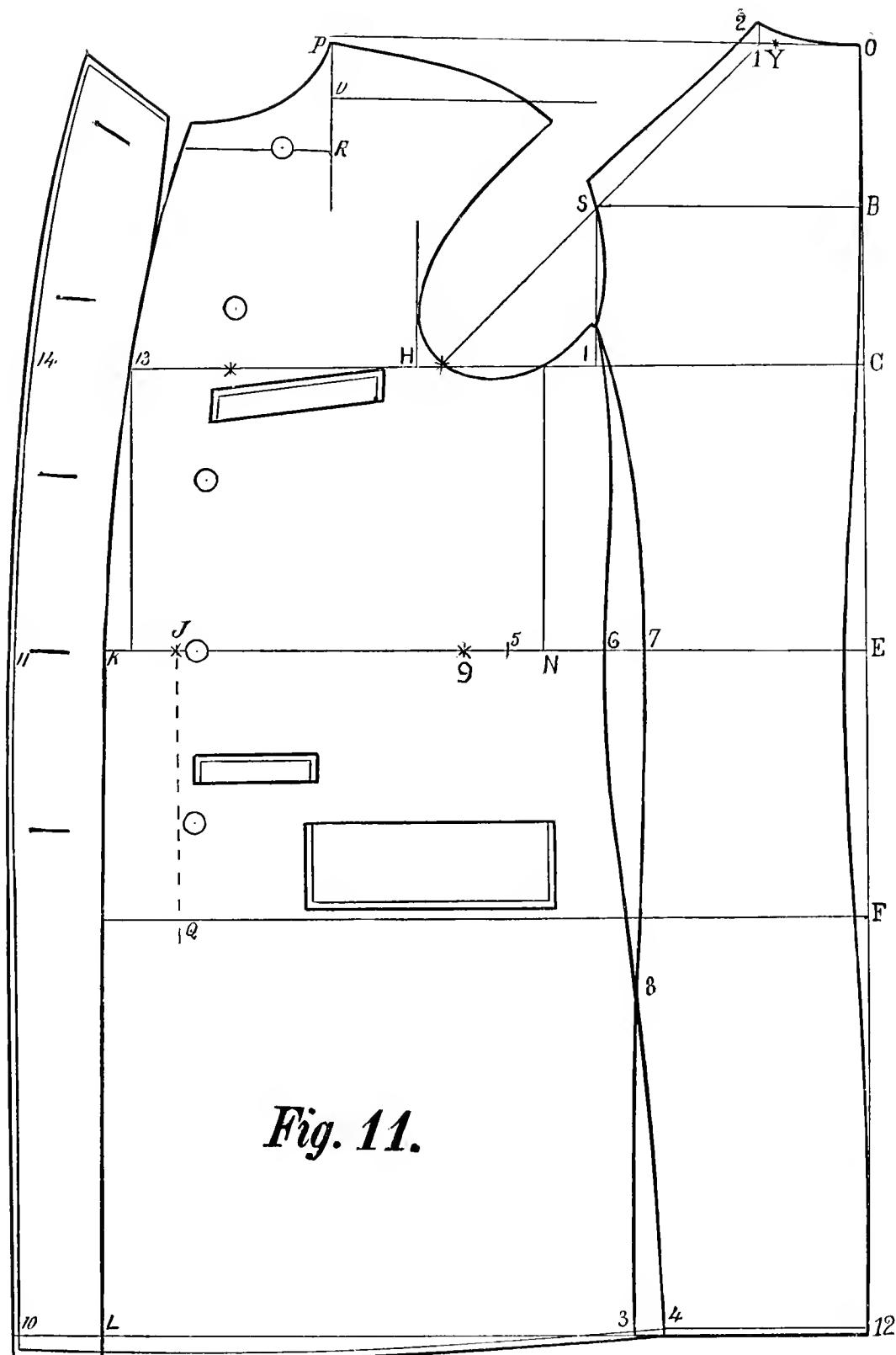
This also has no change, peculiar to distinguish it from the under sack, except its size, which is two inches larger. This means, that all the widths of breast-waist and hip must be made so much larger and that the drafting size also is increased.

The lengths are to be increased in proportion or to measure at hand.

The lap in front for a fly need never be larger than two inches, and the buttons are placed one inch back of centre breast-line.

The fly stitching line is marked about one-half inch back of centre line, and curved at the lower end, as shown on the diagram.

For a long roll, mark the crease row for a collar as low as the second button only—which produces a curved collar, sufficient to allow the front to roll, yet not too crooked to prevent it from buttoning up close at the neck, or for a short roll.



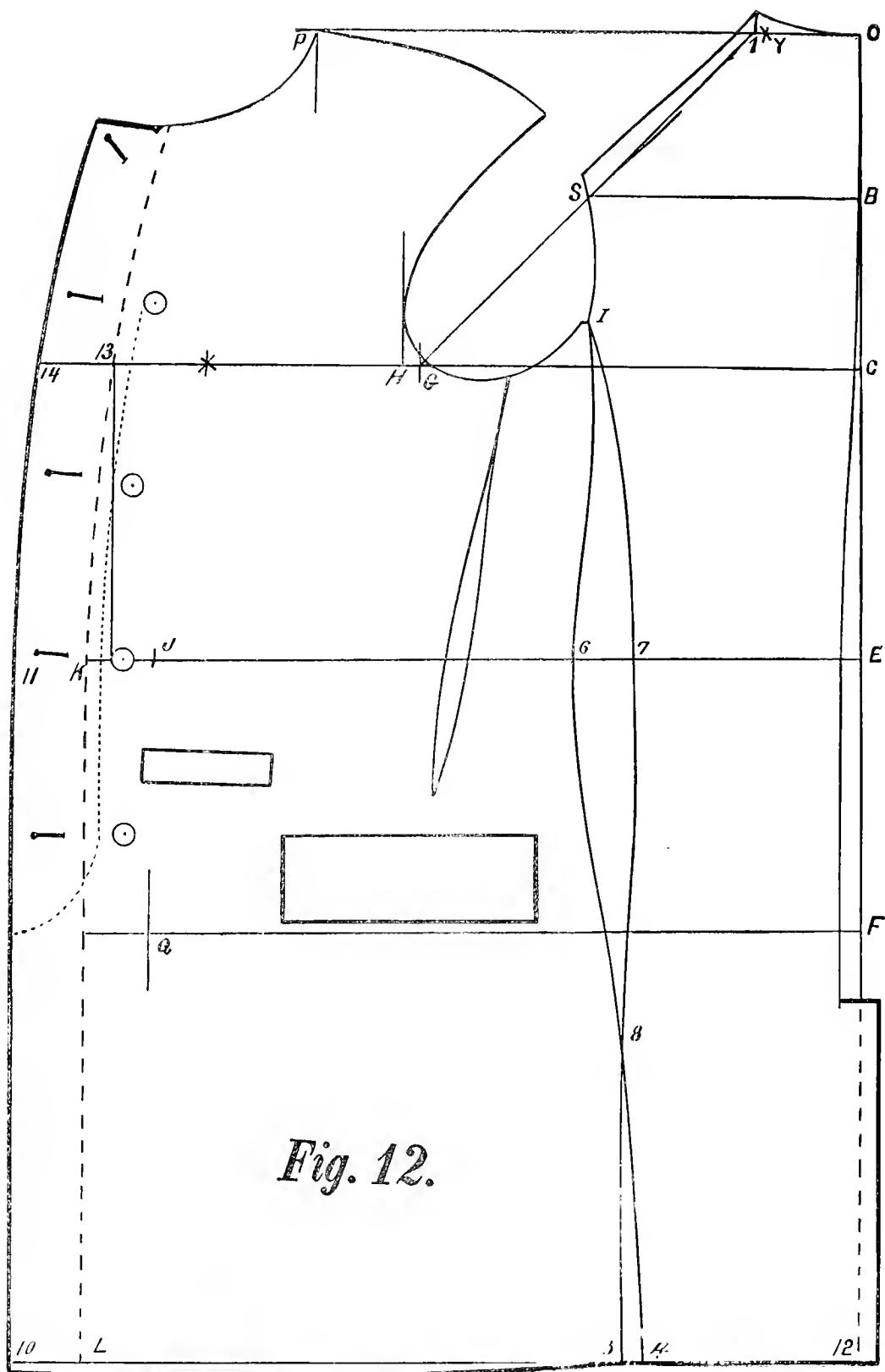


Fig. 12.

THE SLEEVE.

FIGURE 13.

Take the size of the armhole to draft the sleeve by; and first start by drawing the line 0-Z and 0-Q.

From 0 to 10 is one-third of size.

From 0 to Z is one-half.

From 0 to F is one-fourth.

Draw line Z down to elbow, and line 10 to R.

From R up to H is one-fourth, there draw a short line to 1 and L, now from point F to Z draw a diagonal line and halve it, which gives point U.

Measure this diagonal line and take one-third of it from U to A, and use A as pivot to sweep the top of sleeve head, from B to L and P. From B then curve it a little below to H, and starting from 12 which is one-quarter inch above the line draw through D and merging into the curved sleeve top.

The line D T is midway between line 10 and line F.

Measure the length of sleeve from 10 to Q and draw a line over to Y.

Go down from Y to W one inch, and make the size at wrist to style or 6 inches from Q to Y.

From H draw the back arm seam to W.

From P near D the dotted line is the centre of the sleeve, but we let the seam start from D and for the under sleeve, we go back from the straight line what we went forward, or the same as from the dotted line to D is to T. From T curve under sleeve past N to I.

Measure under-sleeve from P to 1 and this should be exactly one-half of the arm-hole, while the upper part from F to H must be one-half and 2 inches.

Curve the inside seam any amount desired to taste and finish.

The manner which the dotted forepart lays, shows the way of putting the notch at the front, the line under the arm and the line 12 and R lay on each other, and point D will be the notch.

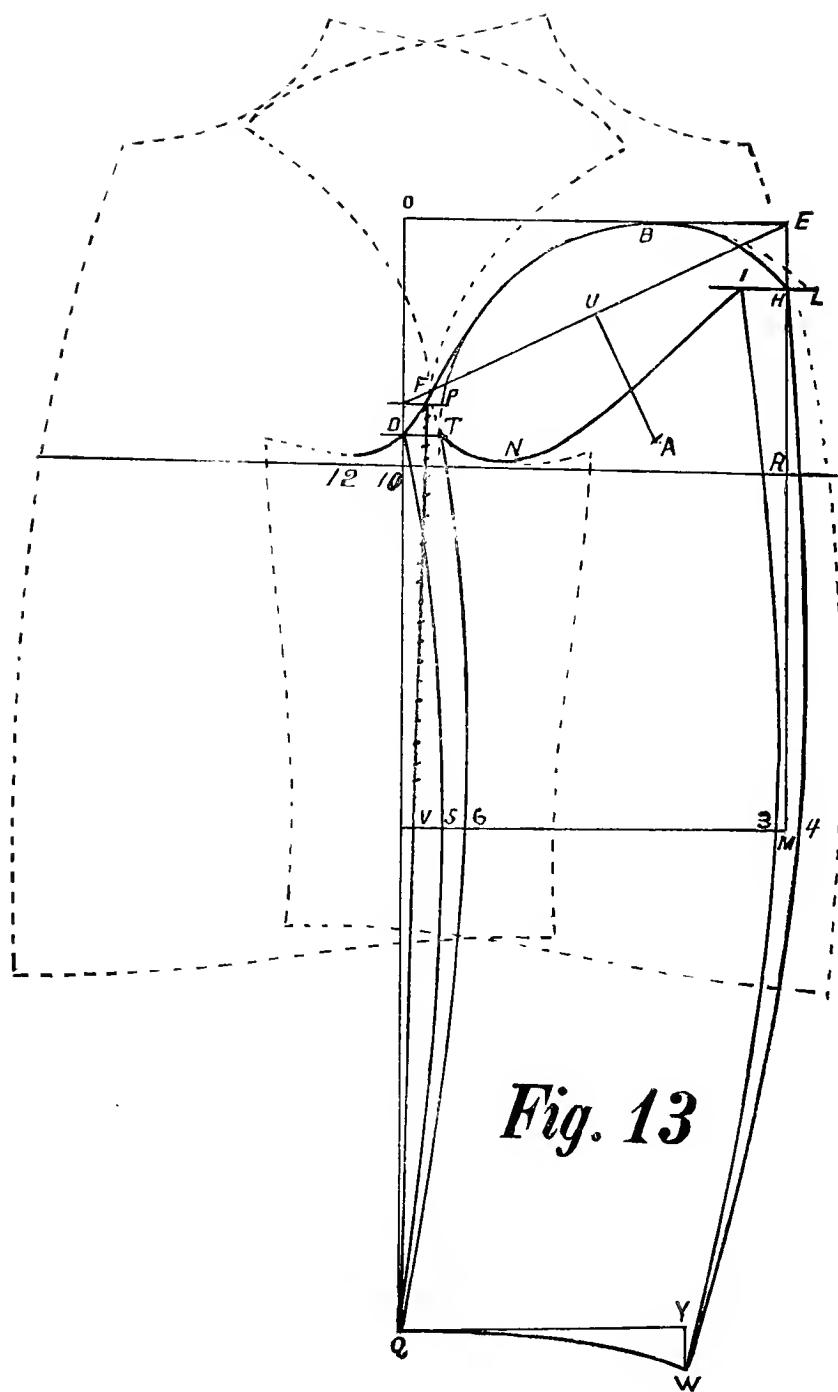


Fig. 13

READY-MADE CLOTHING.

For cutting ready-made clothing, the sizes we have given so far are too small because the manner of both making and trimming these goods there is more lost. Therefore we have also given tables to show the increase in widths, and we will here endeavor to show the additions required.

On table *E* are given the regular breast sizes—the increased size required in width of breast and waist for fine work, and more ordinary or coarse work.

But in cutting patterns for either of these it must not be understood that the heights or lengths increase in the same ratio. This should not be the case, but on fine work, one size increase of scale will be amply sufficient, or two sizes for common work.

It may be remembered, that the height scale does not correspond in all size of breast in the same ratio, therefore we have given the scale laid out ready for use.

We have a scale prepared for ready-made, which we send with the book, both for custom and clothing. This scale is on boxwood, neatly engraved and is a very attractive piece for the cutting board.

In cutting stout sizes allow one-half inch on size of breast and $\frac{3}{4}$ inch on waist, add to the blade $\frac{1}{4}$ inch, and shorten the height scale one size; shorten the total length of waist and full length one size. The sleeves are shortened one size.

On long sizes use the scale of height one size larger. Lengthen the back at waist also one size, but retain the same size of breast and waist. The sleeves are made one size longer.

Overcoats of all kinds must be cut two sizes larger in every way than the undercoats.

Dressing gowns and smoking jackets are cut two sizes larger.

TABLE E.

READY-MADE COATS.

DRAFT THE SIZES TO FOLLOWING TABLE.

Make the size of breast and the waist according to increased numbers in second and third row for fine or summer work, and by the sizes given in second tier for heavy winter or common clothing. For fine work the heights are made one size larger, and for common two sizes larger than for custom.

FINE WORK.			COMMON WORK.		
BREAST.	SIZE.	WAIST.	BREAST.	SIZE.	WAIST.
32	33	30	32	34	32
33	34	30 $\frac{1}{2}$	33	35	32 $\frac{1}{2}$
34	35	31	34	36	33
35	36	32 $\frac{1}{2}$	35	37	33 $\frac{1}{2}$
36	37	33	36	38	35
37	38	33 $\frac{1}{2}$	37	39	35 $\frac{1}{2}$
38	39	34	38	40	36
39	40	35 $\frac{1}{2}$	39	41	37 $\frac{1}{2}$
40	41	37	40	42	39
41	42	38 $\frac{1}{2}$	41	43	40 $\frac{1}{2}$
42	42 $\frac{1}{2}$	40	42	43 $\frac{1}{2}$	42
43	43	41 $\frac{1}{2}$	43	44	43 $\frac{1}{2}$
44	44	43	44	44 $\frac{1}{2}$	45
45	45	45	45	45	46
46	46 $\frac{1}{2}$	46	46	46	47
47	48	47	47	47	48
48	49	48	48	48	49
49	50	49	49	49	50

DRAFTING BY MEASURE.

The measure is taken over the vest.

First find the level of the waist, by placing the square across the waist as shown on figure 1, and dot a mark on top at *C* and one at side at *E*.

Then take the length of the back from socket bone *O* to natural waist *C*—to *D* for fashionable length of waist, and full length wanted of skirt.

Next, measure from the socket bone past in front of arm to side at *F*. This measure, to be correct, should be let simply fall down about one inch in front of arm, and from there straight down to the hip.

Now, take the little square, with tape attached, and place it under arm, not very tight, neither too slack, and measure back to the centre at *B*.

Those who prefer to take the shoulder measure can do so, but this measure must be taken very close, and used like we have explained already in a former article.

Next place the square under the arm, like shown on figure 2, and by it measure the height under the arm to *G* at hip, the level of the waist, and while in position, also the length of arm to *P*.

The breast and waist give with these forms all the measures we need.

In drafting, see figure 4. We draw the back line and one at top.

From *O* to *A* we apply the length of back, and to *E* the full length.

From *A* up to *C* is the height under the arm, then draw the lines.

From *C* to *G* is the blade measure and $\frac{1}{2}$ inch.

From *G* to *H* is $\frac{1}{2}$ inch.

Reduce the blade measure to a breast size, as per following example: Supposing the blade is 12 inches, and we add $\frac{1}{2}$ inch; this makes it equal to $\frac{3}{4}$ of a breast measure of $37\frac{1}{2}$. Well, then, all the divisions we now use for the back portion of the coat must be drafted by a $37\frac{1}{2}$ size, and all reference to sizes now are this last breast.

In the shoulder-measure, use it like explained in a former place.

The distance from *C* to *F* is one-quarter of the breast.

Draw a line from *F* down to *N*.

From *O* to *Y* is $\frac{1}{8}$, and to $1\frac{1}{2}$ inch from *Y*.

Draw from 0 to 2.

Also from 6 to 1.

Raise back seam from 2 to 3.

Make the width of back at bottom to style.

Midway between 0, C, is B, from where draw a line to S. When it crosses line mark one down to Z.

Now draw the seye and back.

From N to 9 is one-eighth.

Turn to figure 5 and take the $\frac{1}{3}$ inch for every inch difference between the breast and waist, and place it from N to Z.

Suppose we have a breast of 38 and a waist of 35. The difference in this case would be 3 inches, therefore we take $\frac{1}{3}$ inch. Then form line under arm from E, N to 10, and E, Z to 10.

Now apply the measure of the waist. The draft should measure from 9 to A, $\frac{1}{4}$ of the waist.

To apply it, suppose we have $\frac{1}{3}$ of 35, or 8 $\frac{1}{3}$. We first measure the width of back, which may be 2 inches, place the tape at 2 on to 9 and find how far it is to Z; then skip to N and measure to M, just 8 $\frac{1}{3}$. When this last reaches little point M,

From 9 forward to W is $\frac{1}{3}$ of waist.

From W to T is 2 inches in medium sizes, and 1 $\frac{1}{2}$ in larger ones.

Take the distance from C to H and place it over from T to P, and draw a straight line up from breast line.

Next apply the front length from 9 up to D (see figure 7) and draw a sweep. Then lay the back on to this sweep and touching P.

Having fixed P, measure down from P to R, one sixth of the full breast. Measure and halve it to get U, and draw the lines.

Lay the back so that point S will touch D, then draw the shoulder and finish the seye.

From C to T is one-half of the full breast and from T to Z is 2 $\frac{1}{3}$ inches, or 2 on large sizes.

Now finish the draft as explained in the proportionate system.

Backs are drafted in the same way, and finish as per proportion in the skirts.

When applying the plumb measure under the arm, by my measuring instrument, to get the hip point, and from there (see Fig. 1, Point E), back to C, at the small of waist, it must be applied from the straight line under the arm, back to waist to get the suppression between the side-body and the back. For some cases this may not harmonize with the one-quarter of waist

measure, because the person measured may be very hollow waisted in one case, or very full behind. Yet on the majority of cases the division of one-quarter of the waist will be correct and admirably suited to give the best result.

I may remark that on sack coats when the side-seam require very much hollowing in, it is advisable to raise the point of side-body one-quarter inch, thus giving it more length, and obviating the risk of its drawing away from the neck.

Any information desired by readers of my book, or any points which may appear dim to them, will be always gladly explained by me, on application.

I will say in conclusion that I hope my readers will study the proportionate system first, and then they can begin to use the measures, and they will find that the success they will have will be greater than they dared to hope.

$$\begin{aligned}
 \text{Waist} &= \frac{\text{Chest}}{2} - \frac{\text{Hips}}{2} - \frac{\text{Length}}{2} - \frac{\text{Shoulder}}{2} - \frac{\text{Waist}}{2} - \frac{\text{Length}}{2} - \frac{\text{Waist}}{2} \\
 &= \frac{\text{Chest} - \text{Hips} - \text{Length} - \text{Shoulder} - \text{Waist} - \text{Length} - \text{Waist}}{2}
 \end{aligned}$$

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